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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
IEM030003PCT		
International application No.	International filing date (day/month/year)	Priority date *(day/month/year)*
PCT/CN03/00421	30.May 2003(30.05.03)	31. May 2002(31.05.02)

International Patent Classification (IPC) or national classification and IPC

IPC[7] A47J13/14

Applicant

FU, CHUN

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and /or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 15 sheets.

3. This report contains indications relating to the following items:

I ☒ Basis of the report

II ☐ priority

III ☐ Non-establishment of opinion with regard to novelty ,inventive step and industrial applicability

IV ☐ Lack of unity of invention

V ☒ Reasoned statement under Article 35(2)with regard to novelty ,inventive step or industrial applicability; citations and explanations supporting such statement

VI ☐ Certain documents cited

VII ☐ Certain defects in the international application

VIII ☐ Certain observations on the international opplication.

Date of submission of the demand	Date of completion of this report
31. December 2003(31.12. 03)	17. March 2004(17.03.04)
Name and mailing address of the IPEA/CN 6 Xitucheng Rd., Jimen Bridge, Haidian District, 100088 Beijing, China Facsimile No. 86-10-62019451	Authorized officer Song, Hongming Telephone No.86-10-62085824

Form PCT/IPEA/409(cover sheet)(July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/CN03/00421

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed

☒ the description:

pages _____ ,as originally filed

pages 1-12 ,filed with the demand

pages _____ ,filed with the letter of _____

☒ the claims:

Nos _____ ,as originally file

Nos _____ , as amended (together with any statement)under Article 19

Nos 1-10 ,filed with the demand

Nos _____ ,filed with the letter of _____

☒ the drawings:

sheets/fig 1-2 ,as originally filed

sheets/fig _____ ,filed with the demand

sheets/fig _____ ,filed with the letter of _____

☐ the sequence listing part of the description:

pages _____ ,as originally filed

pages _____ ,filed with the demand

pages _____ ,filed with the letter of _____

2. with regard to the **language** ,all the elements marked above were available or furnished to this Authority in the language in which the international application was filed,unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language Chinese which is:

☐ the language of a translation furnished for the purposes of international search search (under Rule 23.1(b)).

☐ the language of publication of the international application(under Rule 48.3(b)).

☐ the banguage of the translation furnished for the purposes of international preliminary examination (under Ruls Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application,the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description,pages _____

☐ the claims Noa. _____

☐ the drawings,sheets/fig _____

5. ☐ This report has been established as if (some of)the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments(Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/CN03/00421

V. Reasoned statement under Article 35(2)with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement:

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Claims 1-10 are not disclosed by the known prior art , they meet the requirements of PCT Article 33(2)-(4) and possess novelty , inventiveness and practical applicability.

DESCRIPTION

A SEPARATING DEVICE USED FOR A TOILET SEAT, IN WHICH A CONTINUOUS MANTLE FULLY COVERS AN ANNULAR SEAT FRAME

Technical field

The present invention relates to a sanitary device used for a toilet seat.

Background of the invention

Most of toilet seats are not specially used by one person. These toilet seats may come in direct contact with a lot of people in use, so virtually it becomes a medium that spreads all kinds of harmful pathogens. Great efforts are made in existing patents to improve the toilet seats. For example, Chinese patent ZL942433 16.5 discloses a U-shape seat ring of a toilet seat, in which a jacket of the seat ring can be replaced. But this U-shape seat ring opens toward the backside, where an engine base is installed, so the engine base cannot be covered by the jacket.

In physics, the larger the contacting area between a seat and hip is, the smaller the suffered force by a unit area of the hip is, and thereby the user feels more comfortable. This is just the reason why sitting on a sofa is more comfortable than sitting on a wooden stool, especially for a person who has a weighty body. Nevertheless, when using the U-shape seat ring above mentioned, which opens toward the backside, if a user gives consideration to comfort, in other words, he sits on the seat ring in accordance with a normal sitting posture, he will certainly directly contact with the engine base at the backside of the toilet seat. As there are not any separating measures taken for the cabinet, which is used for enclosing the engine base, unsanitary problems will be brought out.

Consequently, a separating effect of absolute and real cleanness cannot be obtained. If the user gives consideration to sanitation, and sits close to the front of the seat frame so as to keep a distance from the engine base provided at the backside of the toilet seat, the user's body will have to lean forward and the gravity center of his body will have to move ahead. Accordingly, the main part of his hip bearing his weight will suspend in space, and his weight is supported by the root parts of his thighs on both sides. It is obvious that the sitting posture of this kind will have a bad influence on blood circulation. Meanwhile, as the sitting posture of this kind is unhealthy, the user's muscles will be in a stressed state. If the user has kept this posture for a long time, he will feel uncomfortable. Most of the seat rings of conventional toilet seats have an annular shape, and some of them have a U shape but open toward the front. All structures above are in conformity with the anatomy structure of the human body's sitting posture.

Summary of the invention

The object of the present invention is to provide a new-style sanitary device used for a toilet seat. Not only can it essentially attain a separating effect of absolute cleanness, but also it possesses the advantages of comfort and convenience in use.

The technical solution for the technical problem of the present invention is described as follows:

The present invention relates to a separating device used for a toilet seat, in which a continuous mantle fully covers an annular seat frame thereof. The whole device comprises a seat frame, a mantle, a mantle recovery device and a turning cap. The whole device is attached to the base of the toilet seat by a rotating shaft, so it can be raised up freely.

The seat frame has two types. One is a seat ring type, the shape of which is

similar to a conventional seat ring. The seat frame of this type is made of a sheet material and covers directly on the edge of the toilet seat's base. It can be used in place of a conventional seat ring. The other one is a framed type having a shape similar to a seat ring. The seat frame of this type has framed structure, and its inner and outer frames rest on the inside and outside of a conventional seat ring, respectively. On the seat frame there is a fracture, where one or more opening/closing parts are provided. One end of the opening/closing part is connected to other parts of the seat frame, and the other end can be opened and closed freely. When the opening/closing part is closed, the seat frame appears a complete circularity .

At the connecting point where the seat frame is connected to the base, a blade is provided.

The mantle is made into a roll. After the mantle is unwound, it takes the shape of a long tube. The mantle is put on the surface of the seat frame. The mantle is made of a plastic film, or other single or composite film materials that not only has a smooth inner surface but also is waterproof. For reminding the user of timely replacing a new mantle, a referring sign is provided adjacent to the terminal end of the mantle.

When the mantle is to be installed, it is put on the seat frame via the fracture of the seat frame. Then it moves around the seat frame by one round. At the backside of the seat frame, it is cut open from the outer side of the seat frame by the blade, and then it covers the other parts of the backside of the seat frame. Finally it comes into the recovery device via the fracture of the seat frame.

After the opening/closing part is closed, the seat frame takes a shape of a full circularity, with its surface that contacts with the human body being covered by one layer of separating film (in the case of a seat frame of seat ring type) or by two layers of separating film (in the case of a framed-type seat frame). A motor or a manual handle is adapted to power the recovery device for recovering the

used mantle and drive a new mantle to cover the whole surface of the seat frame. The above actions are repeated until the user sees the referring sign adjacent to the terminal end of the mantle. Accordingly the user may prepare a new mantle to replace the used mantle timely.

The beneficial effect of the present invention is as follows:

As the seat frame is configured to have a movable opening/closing part, the conflict between putting the mantle on the seat frame and the full circularity of the seat frame can be solved. When a user wants to replace the mantle, he can open the opening/closing part. Thereby, the problem that a new mantle may be polluted by the used mantle during replacement can be solved. Due to the design that a blade is provided at the connecting point between the seat frame and the base, after the mantle is cut open from the outer side of the seat frame, it will continue to cover the backside of the seat frame. Thereby, the conflict between covering the whole surface of the seat frame with the mantle and the mantle's having to pass by the connecting part between the seat frame and the toilet seat's base can also be solved. Due to the settlement of above problems, the one-use mantle can cleanly and fully cover the whole surface of the annular seat frame. Consequently the separating effect allowing the toilet seat absolutely sanitary can be obtained.

After the opening/closing part is closed, the annular seat frame closes. As such, the user will feel that this seat frame is just the same as a conventional seat ring. Furthermore, the film materials have a better property of thermal insulation, and an air layer exists between the seat frame and the seat ring. Thereby, in autumn and winter when the room temperature is not high, it may be avoided that the user's skin feels an instantly contact cold. As a result, the object of a comfortably seating can be achieved.

The mantle can be put on the seat frame easily. After having been put on, the mantle can be used many times, even more than one hundred times, depending

on the length of the mantle. Furthermore, during daily use, the replacement of the mantle can be completed automatically only by starting up the motor or rotating the manual handle. Therefore, the operation is very simple. Furthermore, the referring sign is provided adjacent to the terminal end of the mantle, which means that an awkwardness resulting from the lack of the mantle can be avoided. Accordingly, the object of convenience and practicality can be obtained.

Brief description of drawings

Hereinafter, the present invention will be further explained in combination with the attached drawings and the embodiments.

Fig. 1 is a schematic diagram showing the first embodiment of the invention;

Fig. 2 is a schematic diagram showing a seat frame (framed-type) according to the first embodiment of the invention;

Fig. 3 is a cross-sectional view showing the rear part of the seat frame according to the second embodiment of the invention;

Fig. 4 is a cross-sectional view showing the rear part of the seat frame according to the third embodiment of the invention.

In the figures, each of signs denotes as follows: 1. a seat frame, 1a. the backside of the seat frame, 2. a mantle, 3. a blade, 4.a groove, 5. a rotating shaft of the seat frame, 6. the connecting part of the rotating shaft of the seat frame, 7. a turning cap, 8. the edge of the mantle roll's notch, 9. a rotating shaft, 10. a mantle roll, 11 . an UV sterilamp, 12. a power transmission device, 13 . a mantle recovery device, 14. a manual handle, 15 . a center shaft of the recovery roll, 16. a recovery roll, 17. a driving roller, 18. an opening/closing part, 19. a part of the framed-type seat frame that crosses the seat ring, 20. an inner frame of the framed-type seat frame, 21. an outer frame of the framed-type seat frame, A. an input end of the mantle, B. an recovery end of the mantle.

Preferred embodiments

As shown in Fig. 1, the separating device mainly comprises a seat frame (1), a mantle (2), a mantle recovery device (13) and a turning cap (7).

In the first embodiment, the opening/closing part (18) is arranged at one side of the seat frame (1). On the other side of the seat frame and adjacent to the connecting point where the seat frame is connected to the base of the toilet seat, a blade (3) is provided. As shown in Fig. 1, the blade is preferably fixed in the connecting part (6) between the seat frame and the rotating shaft of the seat frame. Along the edge of the seat frame, the connecting part is formed with a narrow groove (4), which allows only a single layer of the mantle to be put into. Furthermore, the edge of the blade is provided in the groove (4) so that it cannot injure people or clothing.

In Fig. 1, the seat frame (1) is a seat ring type made of sheet materials, while the seat frame shown in Fig. 2 is a framed type made of bar materials. The inner frame (20) and outer frame (21) of the framed-type seat frame rest respectively on the inner and outer edges of a known conventional seat ring (not shown in the Figure). After the mantle is put on, the upper and lower layers of the mantle both cover the conventional seat ring. For the purpose of avoiding that the user feels uncomfortable, the part of the seat frame (19) that crosses the seat ring may take a flat shape, and a recess can be fluted on the corresponding position of the seat ring. Alternatively, the two ends of the part of the seat frame (19) that crosses the seat ring can be bent downwardly so as to make the inner frame (20) and outer frame (21) lower than the plane of the seat ring. In this way, when the mantle is put on and used, it can cover the upper surface and edges of the seat ring.

The long tubular mantle (2) is wound in a closed mantle roll (10). The sidewall of the roll is provided with a notch, the two edges (8) of which are closed with

each other tightly. As such, the mantle is prevented from moving back into the roll, and dust from entering into the roll, thereby maintaining the cleanness of the mantle in the roll. The starting part of the mantle stays out of the notch. In order to remind the user timely to replace the used mantel with a new one, there provides a referring sign adjacent to the terminal end of the mantle.

The mantle roll (10) can be made of recyclable materials, and thereby the mantle roll together with the mantle therein can be used only once. Therefore, it is advantageous to environmental protection, and the resource can be reused. And the cleanness of the mantle can be maintained during transportation, storage and use.

The mantle recovery device (13) is powered by a motor or a manual handle (14). If both the motor and the manual handle are provided, we can ensure that the recovery device works well even when power is out of.

A removable mantle recovery roll (16) is provided in the mantle recovery device (13). Pressing flaps or other structures for attaching the mantle are provided on the center shaft (15) of the recovery roll. The center shaft engages with a power transmission device (12).

The mantle recovery roll (16) can be made of recyclable materials, and used only once. After a roll of the mantle has been used up, the recovery roll with the worn-out mantle therein can be taken out together and recycled. Therefore, it is advantageous to environmental protection, and the resource can be reused. Furthermore, it can simplify the operation, lessen the amount of labour needed to recycle the mantel, and solve the pollution problem caused by the worn-out mantle.

In the mantle recovery device (13), a driving roller (17) engaging with the power transmission device (12) and a pressure roller corresponding to the driving roller can be provided. The two rollers clamp the mantle between them so as to bring the mantel back.

The rotating shaft (5) of the seat frame can engage with the power transmission device (12). When the mantle is replaced, the seat frame (1) will be raised up so as to ensure that the lower surface of the new mantle does not come in contact with the periphery of the base (in the case of a seat frame of seat ring type) or the seat ring (in the case of a framed-type seat frame). As such, even if the mantle turns upside down during sliding, it still remains a thorough cleanness. This design also reduces the sliding resistance during replacement. Furthermore, a controller can be provided to engage with related gear assembly. During different stages of replacing the mantle, the controller controls the gear assembly to rotate it forward and backward, or make it stop. At the same time, the rotating shaft (5) rotates along with the gear assembly. And then a series of actions can be completed, such as raising the seat frame when beginning to replace the mantle, and putting down the seat frame after having completed the replacement.

The mantle roll (10) is connected to other parts of the device by a rotating shaft (9) that is perpendicular to the roll body. The mantle roll (10) can rotate freely around the output direction of the mantle. In this way, even if the mantle turns upside down continuously during replacement, it can still be ensured that the mantle follows its path, turns right side up and is put on the seat frame successfully. If a mantle roll isn't used, the supporting structure used for placing the mantle still connects with the other parts of the device by the rotating shaft that is perpendicular to the center shaft of the mantle roll. The supporting structure can also rotate freely around the output direction of the mantle.

If the mantle recovery device (13) is operated by electric power, a switch of the recovery device may be a conventional touch switch, or a non-touch switch including a type of photo switch. The touch switch is simply and reliable. The non-touch switch need not come in contact with the user's finger. Although the

structure of the non-touch switch is more complicated, it is cleaner.

The motor can be connected to a controller. Once the motor or the driving roller rotates a predetermined period of time or a predetermined number of turns after its startup, it will stop working. At this time, the new mantle will cover exactly the entire seat frame, so waste will not occur.

Furthermore, an UV sterilamp (11) can be provided at the input end of the mantle (A), and is connected to a controller. When the mantle is being replaced, the UV sterilamp turns on, and when the replacement has been completed, the UV sterilamp turns off. The UV sterilamp is used for sterilizing the mantle so as to ensure that the mantle is cleaner.

For the great majority of toilet seats, the water tanks thereof are arranged at the backside of the base, so preferably the mantle roll (10) or the supporting structure of the mantle in the first embodiment is arranged at the underside of the rotating shaft of the seat frame. The mantle moves up and out, then turns forward and moves into the fracture of the seat frame, therefore keeping the mantle away from the water tank at the backside.

With the above structures, the operation of putting on the mantle and the method of using the mantle in the first embodiment are described as follows:

When the new mantle is to be put on, the mantle (2) is directed out from the mantle roll (10), which locates at the underside of the rotating shaft (5) of the seat frame (Fig.1 is only a schematic diagram, and for clarity the mantle roll (10) shown is not drawn underside of the rotating shaft (5)). Firstly, the mantle moves upwards and turns forward from the back of the rotating shaft (5) of the seat frame. Via the opening/closing part (18) of the seat frame, the mantle is put on the seat frame. Then the mantle moves around the seat frame by one round. At the backside (1a) of the seat frame, the mantle comes into the groove (4), which is in the connecting part (6) of the rotating shaft of the seat frame. From the outer side of the seat frame, the mantle is cut open by the hidden

blade (3) and covers other parts of the backside (1a) of the seat frame. Then, the mantle passes through the fracture of the seat frame and comes into the mantle recovery device (13). Finally, the mantle passes by the driving roller (17) and the pressure roller, and the starting part of the mantle is attached to the center shaft (15) of the recovery roll (16). Here this ends the operation of putting on the mantle. The opening/closing part (18) is closed, and the new mantle will be ready for use.

Hereafter, every time we can press the switch or rotate the manual handle (14) to use the toilet seat. With the power, the seat frame (1) raises, and the driving roller (17) and the pressure roller wind into the used mantle. Due to the tension of the mantle, the opening/closing part (18) will tilt toward the mantle's input end (A) connected to it. Consequently an angle will be formed between the part (18) and the seat frame's plane. The new mantle is pulled out of the mantle roll (10), and after having been irradiated by the UV sterilamp, which is turned on synchronously, it is put on the seat frame via the opening/closing part. As the new mantle is kept apart from the used mantle passing below, the new mantle will not be polluted by the used mantle. Subsequently, the new mantle will be put on the front of the seat frame, cut open by the blade (3) and cover the backside (1a) of the seat frame, at last fully cover the whole seat frame. After the seat frame is put down and the opening/closing part is closed, the mantle will be ready for use. In such a manner, the mantle is used until the referring sign appears. Then the user can replace a new mantle timely.

After the mantle (2) passes through the fracture of the seat frame, comes into the recovery device (13), and is pulled by the driving roller (17) and the pressure roller, the mantle can fall directly into a waste box, which can be cleaned up periodically.

In different embodiments, modifications can be made in many aspects, such as the directions toward which the opening/closing part opens and closes, the

position of the opening/closing part, and the number of the opening/closing parts. The opening/closing part can be configured to open and close above the seat frame's plane as in the first embodiment. Also, it can be configured to open and close under the seat frame's plane (as shown in Figs. 3 and 4). It can even be configured to open and close on the seat frame's plane. The opening/closing part can be provided at one side of the seat frame as in the first embodiment. Also, it can be at the backside (1a) of the seat frame. If the opening/closing part is at the backside (1a) of the seat frame, the connecting part (6) between the seat frame and the rotating shaft of the seat frame can be reduced to only one (as shown in Figs. 3 and 4). The number of the opening/closing part can be one as in the first embodiment or more than one. Furthermore, the directions in which the mantle is put on the seat frame and taken from the seat frame, the position of the mantle roll (10), and the position of the mantle recovery device (13) can also be changed correspondingly.

For example, in the second embodiment shown in Fig. 3, both of the two opening/closing parts (18) are all provided at the backside (1a) of the seat frame. The opening/closing part on the left side of the fracture opens and closes under the seat frame's plane, thereby corresponding to the mantle recovery end (B), which is under the seat frame's plane. The opening/closing part on the right side of the fracture opens and closes above the seat frame's plane, thereby corresponding to the mantle input end (A), which is above the seat frame's plane. The advantage of this embodiment is that, because the mantle's input end is arranged at the side, the water tank at the backside of the toilet seat's base can be passed round thoroughly.

Further example in the third embodiment shown in Fig. 4, on the basis of the second embodiment, the input end (A) of the mantle is provided at the same side as the recovery end (B) and arranged above the recovery end (B). Both of the new mantle and the used mantle pass under the seat frame. Furthermore, the

new mantle turns a 180 degree angle through the fracture of the seat frame, and then is put on the seat frame. The advantage of this embodiment is that the input end of the mantle can pass round the water tank thoroughly. Moreover, the input end and the output end of the mantle are close together with each other, so the device is compact. When the seat frame is put down after the seat frame has been raised up and the replacement of the mantle has been completed, the opening/closing part will close automatically. The new mantle turns a 180 degree angle under the plane of the seat frame, and then is put into the fracture of the seat frame, which makes the appearance of the seat frame's upper surface cleaner and tidier.

CLAIMS

1. A separating device used for a toilet seat, in which a continuous mantle fully covers an annular seat frame, the device being attached to the base of the toilet seat by means of a rotating shaft, the device comprising: a seat frame, a mantle, a mantle recovery device and a turning cap, wherein the seat frame having a fracture thereon has a shape similar to a conventional seat ring, and the long tubular mantle is put on the seat frame through the fracture, characterized in that,

a). said seat frame being of a seat ring type or a framed type;

b). a blade being provided at the connecting point where said seat frame is connected to said base;

c). said mantle, being cut open, covering other parts of the backside of said seat frame.

2. A mantel used for the separating device in the claim 1, the mantle is made of plastics or other single or composite materials, characterized in that, a referring sign or an array of referring signs is (are) provided adjacent to the terminal end of the mantle, indicating the mantle to be used out.

3. The device according to the claim 1, characterized in that, there being provided one or more opening/closing parts at said fracture, one end of which is connected to other parts of said seat frame via a movable member so as to make said seat frame appearing a complete circularity when the opening/closing part is closed.

4. The mantle according to the claim 2, characterized in that, said mantle being placed in a closed mantle roll; a notch being provided in the sidewall of

the mantle roll; the two edges of the notch being closed with each other tightly, the starting part of said mantle staying out of the notch.

5. The device according to the claim 1, characterized in that, a removable mantle recovery roll being provided in said mantle recovery device; the center shaft of said recovery roll being engaged with a power transmission device; pressing flaps or other structures for attaching the mantle being provided on said center shaft.

6. The device according to the claim 1, characterized in that, a driving roller engaging with the power transmission device and a pressure roller corresponding to the driving roller being provided in said mantle recovery device, said two rollers clamping the mantle between them so as to recover the used mantel.

7. The device according to the claim 1, characterized in that, the rotating shaft of the seat frame being engaged with related gear assembly of the power transmission device, which is connected to a controller; during different stages of replacing the mantle, the controller controlling the gear assembly to rotate it forward and backward, or make it stop, at the same time the rotating shaft rotating along with the gear assembly so as to open /close the seat frame.

8. The device according to the claim 1, characterized in that, said mantle recovery device being operated with electric power, and the switch used for the mantle recovery device being a conventional touch switch or a non-touch switch.

9. The device according to the claims 1, characterized in that, the mantle

recovery device being operated with electric power, in which a motor is connected to a controller; once the motor or the driving roller rotating a predetermined period of time or a predetermined number of turns after its startup, it stopping work, at this time the new mantle just covering exactly all the seat frame.

10. The device according to the claims 1, characterized in that, an UV sterilamp being provided at the input end of the mantle, from which the mantle is put on said seat frame.